



Hanford Waste Treatment and Immobilization Plant – Rebaseline and Contract Modification Proposal Process

2017 Project Management Workshop

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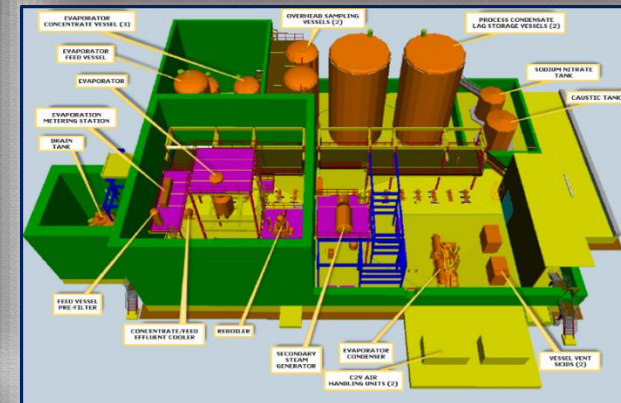


- Introduction to Direct-Feed Low-Activity Waste (DFLAW)
- Rebaseline and Contract Modification for DFLAW
 - Backdrop and Challenges
 - Process and Timeline
 - Revised Contract Incentives
- Lessons Learned
- Path Forward

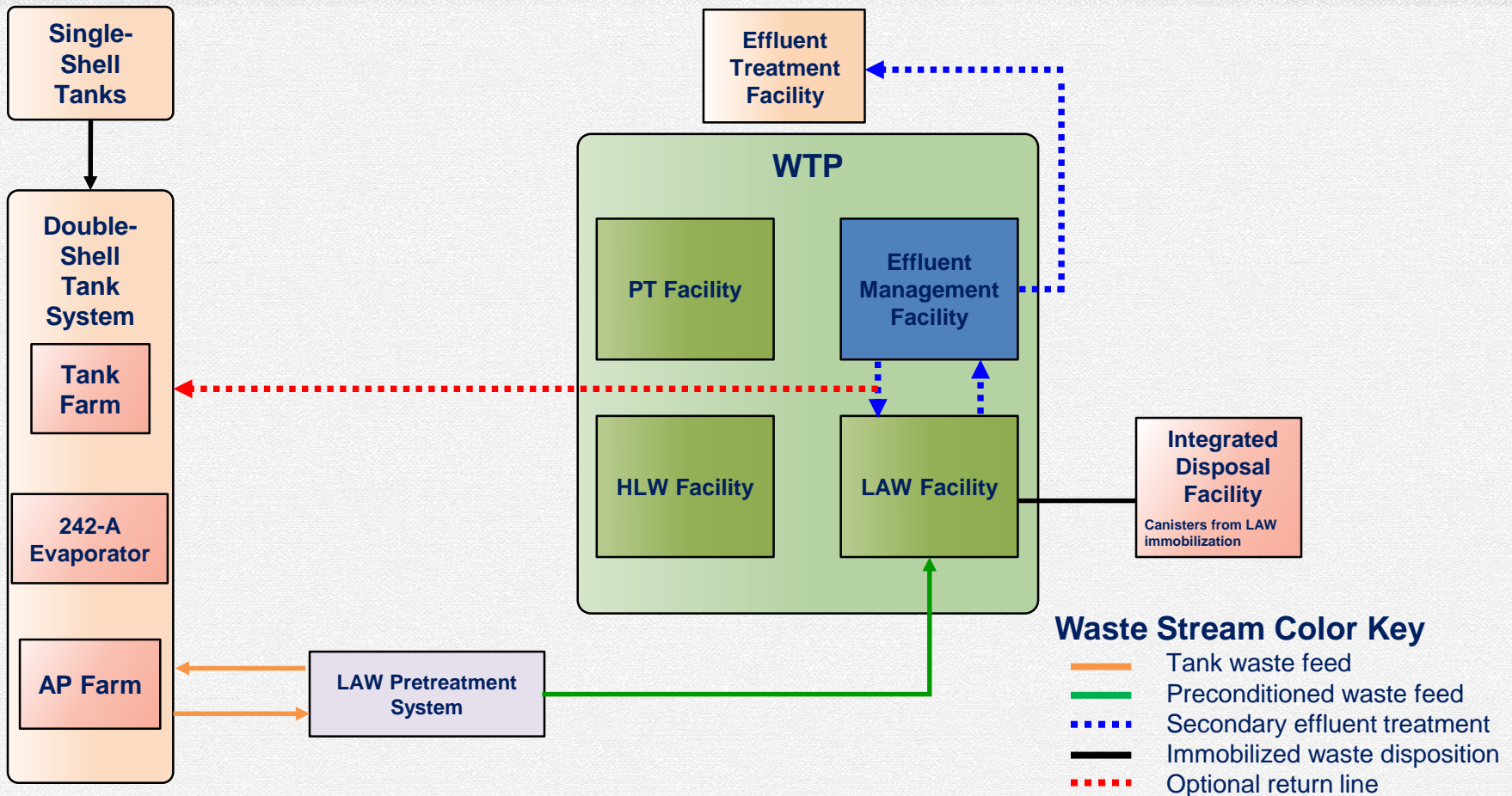




Direct-Feed Low-Activity Waste



DFLAW Configuration Flow Diagram



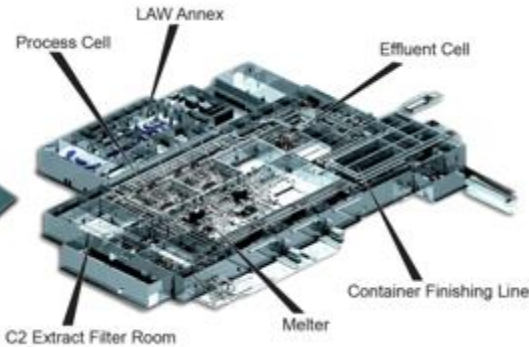
The DFLAW approach sends pretreated tank liquids directly to the LAW Facility, enabling treatment operations as early as 2022.



Low-Activity Waste Facility Statistics

Low-Activity Waste Facility

Elevation 0'-0"



Size: 330 ft × 240 ft × 90 ft tall

Concrete: 28,500 cu yds

Structural Steel: 6,200 tons

HVAC Ductwork: 943,500 lbs

Piping: 103,000 linear ft

Electrical Cable: 843,000 ft

LAW Container

- 4 ft diameter
- 7 ft tall
- 7 tons



LAW Process Metrics:

- Two 300-ton melters (20 ft × 30 ft × 16 ft tall)
- 21 metric tons of glass per day
- Produce 1,100 immobilized glass containers/year



- Ongoing design-build nuclear construction project
- No valid project Performance Baseline since early 2012
- Consent Decree proceedings ongoing
 - Amended Consent Decree ruling issued in March 2016
- Ongoing external reviews from U.S. Government Accounting Office, Office of Inspector General, Defense Nuclear Facilities Safety Board, etc.
- Ongoing emphasis and priority on resolving WTP technical issues
- Alignment of DFLAW interfaces and waste feed/design criteria between WTP and Tank Farms



Rebaseline and Contract Modification – Challenges

- Incorporate new scope for DFLAW into existing work plans
- Integration with Tank Farms to establish DFLAW operational and interface specifications
- Rebaseline existing scope for LAW, BOF¹, and LAB¹
- Contract negotiations overlapped with BCP reviews
- Mandate to complete BCP and contract in parallel – “signature ready” on the same day
- Compressed traditional time frames for DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets* external reviews

¹ Partial baseline.





Contract Modification Proposal Process

- Established new contract line item number (CLIN) structure aligned with sequenced mission completion strategy
- Obtained contract modification proposals in pieces
 - DFLAW Design (CLIN 2.1)
 - LBL completion through hot commissioning (CLIN 1.0)
 - DFLAW procurement, construction, and commissioning (CLINs 2.2, 2.3, and 2.4)
- Conducted *Federal Acquisition Regulation*-required reviews for each proposal
 - Independent Government cost estimates
 - Cost and technical evaluations
- Independent attribution review conducted by A.R. Biddle
- Contract negotiations preceded but overlapped with DOE O 413.3B required external reviews and Energy Systems Acquisitions Advisory Board (ESAAB) preparations





Rebaseline Cost Proposal Process

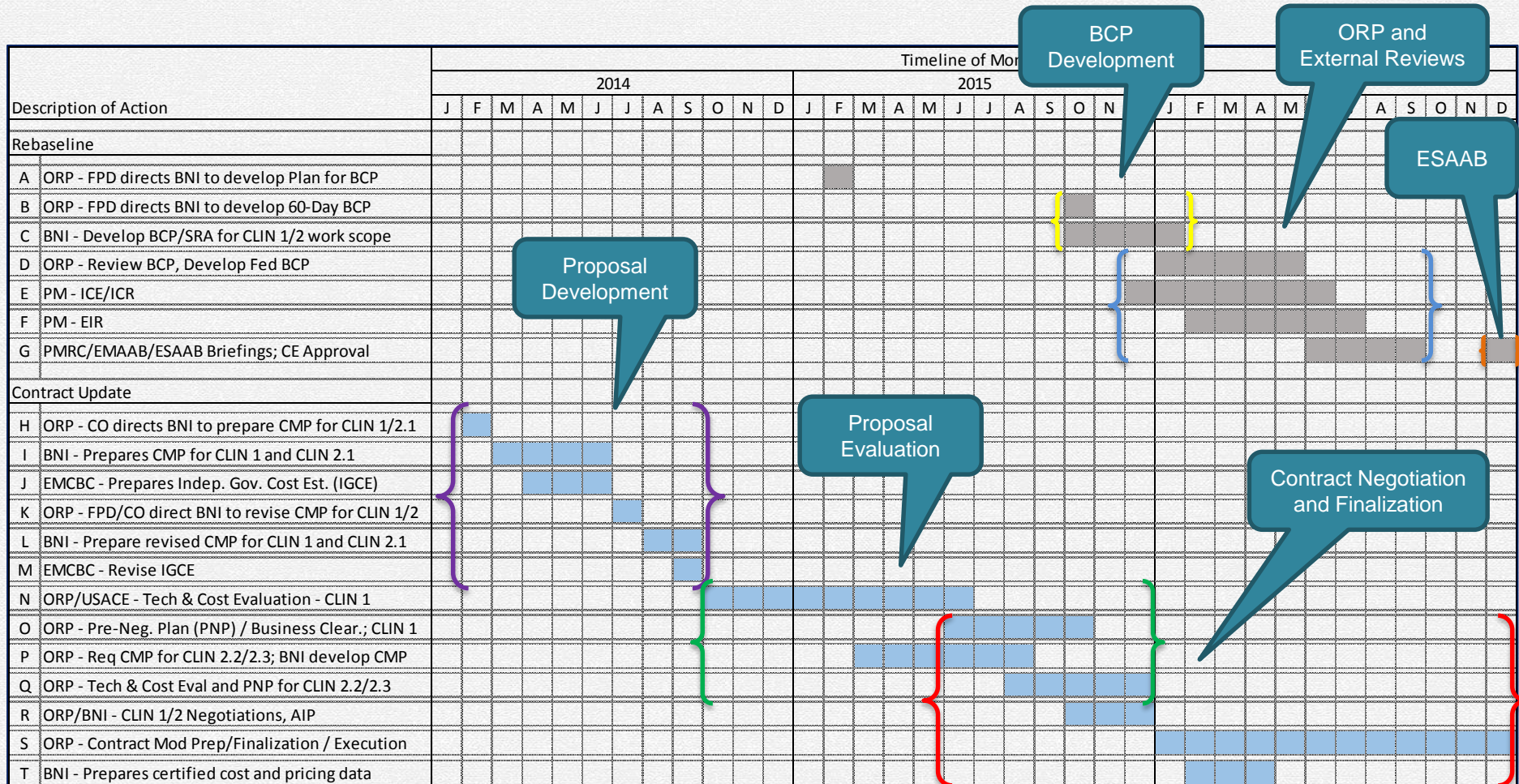
- **Incremental rebaseline** aligned with sequenced mission approach – starting with DFLAW
- Integrated BCP – incorporated all contract proposal scope into a single BCP
- Integrated BCP completion schedule with Independent Cost Estimate/External Independent Review
- Early, iterative briefings to the Office of Environmental Management Leadership, DOE Project Management Risk Committee, and ESAAB members
- Pre-ESAAB and ESAAB briefings

Result: BCP and contract modification approved and executed on same day.





“As-built” Timeline of the DFLAW/LBL Contract Modification and Rebaseline Process





➤ WTP 2016 Performance BCP

- BCP value: \$4.550 billion
- Adds DFLAW work scope specific to WTP
- Completes DFLAW/LBL construction, startup, and cold commissioning (Critical Decision [CD] 4a)
- Removes DFLAW/LBL hot commissioning from the WTP Project's Performance Baseline (remains a WTP contract requirement)
- Includes \$1.23 billion of risk reserve @ 90 percent confidence level
 - Management Reserve: \$323 million
 - Contingency: \$907 million
- BCP approved by Chief Executive for Project Management (S-2) on December 15, 2016

Incremental Total Project Cost:

\$12.263B ➡ \$16.813B

CD-4/4a:

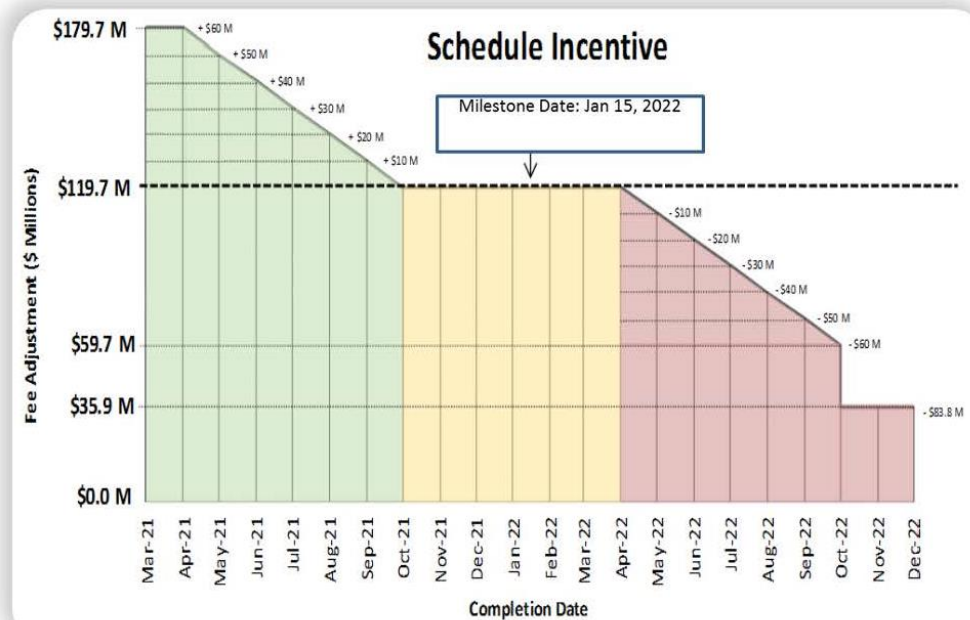
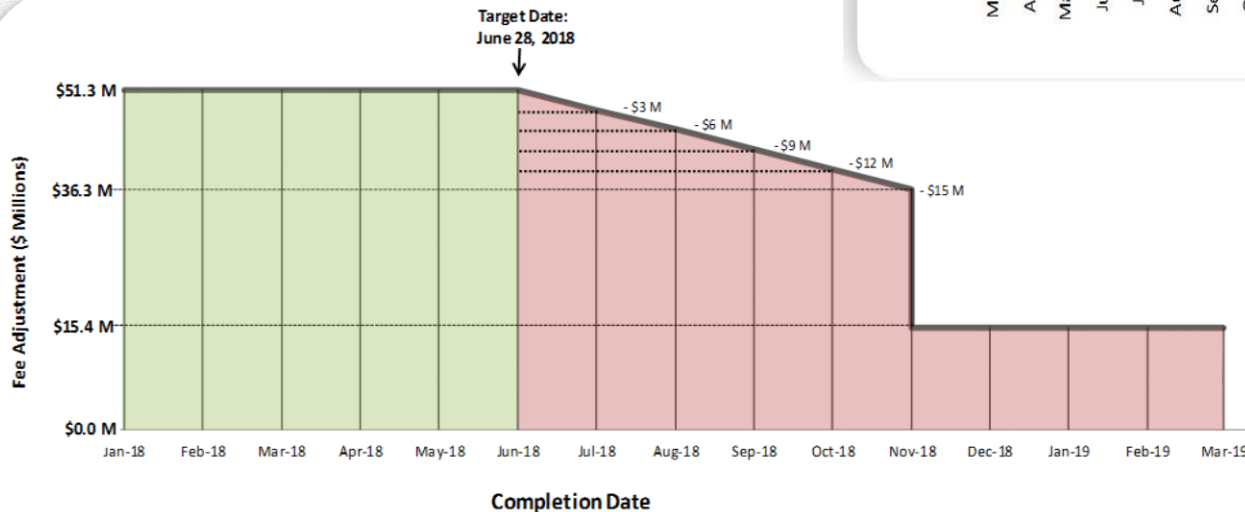
November 2019 ➡ August 2023





Key Incentive Features of Revised Contract

- Incentive structure emphasizes integrated cost and schedule performance
- Fee for completion milestones declines monthly to a minimum fee after defined period
- Performance (award) fee criteria updated annually to emphasize current project phase and priorities



*Contract
modification value:
\$3.123 billion
Total available fee
(maximum):
\$360 million*

Engineering, Procurement, and Construction:

- Install the caustic scrubber vessel
- Complete final structural assembly of melter #1
- Complete final structural assembly of melter #2
- Complete bulk wire pulls associated with the last LAW elevation (+48 feet)
- **Complete LBL construction**

Startup and Commissioning:

- DOE approval of LAW Documented Safety Analysis
- LAB startup testing complete
- LAW startup testing complete
- Effluent Management Facility startup testing complete
- LAB readiness to operate
- LAW DOE Headquarters Operational Readiness Review complete
- **Successful demonstration of LAW Facility hot commissioning**



Contract/BCP Dates to Meet Amended Consent Decree for LAW

	Project Schedule	Contract	BCP	Amended Consent Decree
LAW Construction Substantially Complete	Nov 2017	June 2018	*	Dec 2020
Start LAW Cold Commissioning	June 2020	*	*	Dec 2022
Complete LAW Cold Commissioning	Nov 2020	*	*	*
CD-4/4a ¹	April 2021	Sept 2021	Aug 2023	*
Complete LAW Hot Commissioning	June 2021	Jan 2022	*	Dec 2023

* Dates not specified in referenced document.

¹ The WTP Project defines CD-4a, "Approve Start of Initial Waste Treatment," as the successful completion of cold commissioning, an operational readiness review, and approval to startup the LAW Facility consistent with DOE O 425.1D, *Verification of Readiness to Start Up or Restart Nuclear Facilities*.





- Extensive up-front planning and communication, including contract and project “summits” with DOE Headquarters and field leadership to ensure alignment
- Close coordination with DOE’s Office of Project Management Oversight and Assessments for completing independent cost review and external independent reviews
- Early engagement with DOE’s Project Management Risk Committee as part of ESAAB pre-briefings
- Contract modification and BCP concurrent approval allowed for immediate implementation of revised Performance Baseline
- Under-estimated time required to complete both development and review of baseline and contract proposals
- Used multiple sources used for development of independent government cost estimates – not ideal



- Re-established PARS II reporting to revised Performance Baseline; added new project report for DFLAW/LBL work scope
- Earned value management system review scheduled for 2017
- Construction project peer review scheduled for 2017
- Enhanced baseline change, schedule, and risk reviews
- Complete PT Facility technical issue resolution
- Begin process to rebaseline HLW and PT facilities





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The Hanford Reach
White Bluffs Overlooking the Columbia River